CONSTRUCTION SPECIAL SPECIFICATION

SECTION 15790_S

AIR COILS

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PART 1 -GENERAL

1.01 SECTION INCLUDES

A. Water coils.

1.02 REFERENCES

A. ANSI/ARI 410 - Forced-Circulation Air-Cooling and Air-Heating Coils.

B. ANSI/NFPA 70 - National Electrical Code.

C. ANSI/UL 1096 - Electric Central Air Heating Equipment.

D. SMACNA - HVAC Duct Construction Standards, Metal and Flexible.

1.03 SUBMITTALS

A. Submit shop drawings under provisions of Section 15010 and 01330.

B. Submit shop drawings indicating coil and frame configurations, dimensions, materials, rows, connections, and rough-in dimensions.

C. Submit product data under provisions of Section 15010 and 01330.

D. Submit product data indicating coil and frame configurations, dimensions, materials, rows, connections, and rough-in dimensions.

E. Submit manufacturer's installation instructions under provisions of Section 15010 and 01330.

F. Submit manufacturer's certificate under provisions of Section 15010 that coils are tested and rated in accordance with ANSI/ARI 410.

1.04 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section 15010.

B. Store and protect products under provisions of Section 15010.

C. Protect coil fins from crushing and bending by leaving in shipping cases until installation, and by storing indoors.

D. Protect coils from entry of dirt and debris with pipe caps or plugs.

PART 2 -PRODUCTS

2.01 CHILLED AND HOT WATER COILS:

A. Water coil capacities, pressure drops and selection procedures shall be certified for the capacity scheduled on the drawings in accordance with ARI Standard 410-87. Non-certified coils will not be accepted.

B. Chilled and hot water coils shall be of the extended surface type meeting all conditions and having the minimum face area and pressure drops scheduled on the Drawings, and shall have same-end supply and return connections unless otherwise indicated. Coils shall be constructed of copper tubes 5/8" O.D. with .035" thick minimum wall thickness and aluminum fins permanently bonded to the tubes by mechanical expansion. Coils shall have a maximum of 8 fins per inch, and a maximum of 6 rows. If additional capacity is necessary, the additional capacity shall be provided by an additional coil, with an additional access section between the coils, and the coils shall be piped in series, counterflow to the direction of air flow

C. Coil headers and connections shall be of I.P.S. brass or heavy gauge seamless hard drawn copper tubing with penetrations for connection of core tubing by die-formed intrusion process with resulting contact depth between the header wall and core tubing of not less than .090". Joints between core tubing and header shall be of recess swage design to allow a large mating area for build up of brazing materials to give increased strength to the joint. Supply and return connection of brass or copper shall be terminated with National Pipe Threads with wrench flats.

D. Coils shall be designed and certified by the manufacturer to operate to scheduled face velocity plus 10% without moisture carry over. Each coil section shall be provided with a 316-L Stainless Steel frame/casing, including tube sheets, no lighter than 16 gauge. Frame members shall extend over the ends and edges of the coils and shall be constructed with formed holes for tubes, permitting free expansion and contraction of coil sections while supported by an extended surface of the frame. Intermediate tube support sheets of 316-L stainless steel shall be provided in all coils having tube lengths in excess of 48": on long coil sections the spacing of coil supports shall not exceed 48". All intermediate supports shall be welded to coil frame members and fabricated with formed tube holes to support the penetrating tubes.

E. Condensate from chilled water coils shall be piped to the nearest convenient floor drain. The pipe size shall be 1" minimum diameter, insulated as specified for chilled water piping. A trap of a minimum depth of 6 inches shall be provided in this drain line to prevent the escape or entry of air through the drain piping.

F. Where blow-through units are provided without internal heating coils in the hot deck position, a perforated plate shall be provided in place of the heating coils to simulate the air flow resistance of the absent coil.

G. Pressure test all coils to 350 psi under water.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install in ducts and casings in accordance with SMACNA HVAC Duct Construction Standards, Metal and Flexible.

C. Support coil sections independent of piping on steel channel or double angle frames and secure to casings. Provide frames for maximum three coil sections. Arrange supports to avoid piercing drain pans. Provide airtight seal between coil and duct or casing.

D. Protect coils to prevent damage to fins and flanges. Comb out bent fins.

E. Make connections to coils with unions and flanges.

F. On water coils, provide shut-off valve on supply line and lockshield balancing valve on return line. Locate water supply at bottom of supply header and return water connection at top. Provide float operated automatic air vents at high points complete with stopvalve. Ensure water coils are drainable and provide drain connection at low points.

G. On water heating coils, and chilled water cooling coils, connect water supply to leaving air side of coil (counterflow arrangement).

H. Provide drain pan and drain connection for cooling coils. Fabricate drain pan from minimum 18 gage 316L stainless steel. Extend 3 inches from face of coil entering air side, 18 inches from face of coil leaving air side. Pipe drain pans individually to floor drain with water seal trap.

I. Insulate headers located outside air flow as specified for piping. Refer to Section 15083.

3.02 SCHEDULE

Refer to plans for information.

END OF SECTION